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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/713,589	Applicant(s) LONG ET AL.	
	Examiner KENAN CEHIC	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 11 June 2008.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-30 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-30 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's arguments with respect to claim 1-19 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claim 1, 19, 28, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over ITU-T Recommendation G.992.3. in view of Palm (US 7,296,086).

For claim 1, D1 discloses a channel discovery phase (see page 98-100 8.13 and fig 8-23 “Channel Discovery” and page 110, 8.13.3 “Channel discovery phase”) of a DSL service initialization (see page 98-100, 8.13 “Initialization Procedure….ADSL transceiver initialization “), the method comprising:

transmitting a C-COMB signal (see page 111, 8.13.3.1.2 “transmit….C-COMB symbols” and page 145 , 8.15.2 “Channel discovery phase….loop diagnostic mode…figure 8-35” 158 “C-COMB1….C-COMB2” and page 137 “C-COMB1….C-COMB2”) to a customer premises DSL transceiver (see page 98 , 8.13.1.1 “ATU-R and ATU-C…..which parameters are exchanged” andpage 111, 8.13.3.1.2 “ATU-C shall transmit….ATU-R”) during the channel discovery phase (see page 98-100 8.13 and fig 8-23 “Channel Discovery” and page 110, 8.13.3 “Channel discovery phase”); and

a quiet period (see page 137 “C-Quiet1….C-Quiet2…. C-Quiet3-5” and page 110 ,8.13.3.1.1 “C-Quiet1”) of the channel discovery phase (see page 98-100 8.13 and fig 8-23 “Channel Discovery” and page 110, 8.13.3 “Channel discovery phase”).

For claim 19, D1 discloses a central office DSL transceiver (see page 98, 8.13 “ATU-C” and page 6 “ATU-C…central office”) during a channel discovery phase (see page 98-100 8.13 and fig 8-23 “Channel Discovery” and page 110, 8.13.3 “Channel discovery phase”) of a DSL service initialization (see page 98-100, 8.13 “Initialization Procedure….ADSL transceiver initialization “), the transceiver configured to perform the operations:

transmitting a C-COMB signal to a customer premises DSL transceiver during the channel discovery phase (see page 98-100 8.13 and fig 8-23 “Channel Discovery” and page 110, 8.13.3 “Channel discovery phase”), the C-COMB signal (see page 111, 8.13.3.1.2 “transmit….C-COMB symbols” and page 145 , 8.15.2 “Channel discovery phase….loop diagnostic mode…figure 8-35” 158 “C-COMB1….C-COMB2” and page 137 “C-COMB1….C-COMB2”) and during a quiet period (see page 137 “C-Quiet1….C-Quiet2…. C-Quiet3-5” and page 110 ,8.13.3.1.1 “C-Quiet1”) of the channel discovery phase (see page 98-100 8.13 and fig 8-23 “Channel Discovery” and page 110, 8.13.3 “Channel discovery phase”);

For claim 28, D1 discloses during a period of the channel discovery phase (see page 98-100 8.13 and fig 8-23 “Channel Discovery” and page 110, 8.13.3 “Channel discovery phase”) in which the customer premises DSL transceiver (see page 98 , 8.13.1.1 “ATU-R and ATU-C…..which parameters are exchanged” andpage 111, 8.13.3.1.2 “ATU-C shall transmit….ATU-R”) transmits messages (see page 111, 8.13.3.1.2 “transmit….C-COMB symbols” and page 145 , 8.15.2 “Channel discovery phase….loop diagnostic mode…figure 8-35” 158 “C-COMB1….C-COMB2” and page 137 “C-COMB1….C-COMB2”)

For claim 30, D1 discloses during a period of the channel discovery phase (see page 98-100 8.13 and fig 8-23 “Channel Discovery” and page 110, 8.13.3 “Channel discovery phase”) in which the (see page 98 , 8.13.1.1 “ATU-R and ATU-C…..which parameters are exchanged” andpage 111, 8.13.3.1.2 “ATU-C shall transmit….ATU-R”) transmits messages (see page 111, 8.13.3.1.2 “transmit….C-COMB symbols” and page 145 , 8.15.2 “Channel discovery phase….loop diagnostic mode…figure 8-35” 158 “C-COMB1….C-COMB2” and page 137 “C-COMB1….C-COMB2”)

D1 is silent about :

As regarding claim 1, A method for synchronizing a TCM Timing Reference (TTRI clock) operating in a Time Compression Multiplexing (TCM-ISDN noise environment), a signal including a TTR indication portion allowing the customer premises DSL transceiver to synchronize the TTR clock, and transmitting a TTR indication signal to the customer premises DSL transceiver to maintain synchronization of the transceiver's TTR clock.

As regarding claim 19, for maintaining synchronization of a customer premises TCM Timing Reference (TTR clock), operating in a Time Compression Multiplexing (TCM-ISDN) noise environment, including a TTR indication portion allowing the customer premises DSL transceiver to synchronize a TTR clock; transmitting a TTR indication signal to the customer premises DSL transceiver to maintain synchronization of the transceiver's TTR clock.

For claim 28, during a period of initiation in which the customer premises DSL transceiver transmits messages that are dominated by far-end crosstalk interference, transmitting a TTR indication signal that is dominated by far-end crosstalk interference to the customer premises DSL transceiver to maintain synchronization of the transceiver's TTR clock.

For claim 30, during a period of initiation in which the customer premises DSL transceiver transmits messages that are dominated by far-end crosstalk interference, transmitting a TTR indication signal that is dominated by far-end crosstalk interference to the customer premises DSL transceiver to maintain synchronization of the transceiver's TTR clock.

Palm from the same or similar field of endeavor discloses:

As regarding claim 1, Palm discloses a method for synchronizing a TCM Timing Reference (TTR -clock) (see col 5 line 40 through col 6 line 50 “C-SYNC signal…synchronized with TTRc…TTR synchronization from the C-SYNC signal” and fig. 5) operating in a Time Compression Multiplexing (TCM-ISDN noise environment) (see col 1 lines 45-64 “interferences results…number of twisted pair wires is shared by xDSL modems and TCM-ISDN” and col 3 line 1-10 and col 5 line 10-25 “TCM-ISDN…disturb”), a signal including a TTR indication portion allowing the customer premises DSL transceiver to synchronize the TTR clock (see col 5 line 40 through col 6 line 50 “C-SYNC signal…synchronized with TTRc…TTR synchronization from the C-SYNC signal” and fig. 5), and transmitting a TTR indication signal to the customer premises DSL transceiver (see col 5 line 40 through col 6 line 15 “remote DSL modem with the central office DSL modem" and fig 3) to maintain synchronization of the transceiver's TTR clock (see col 5 line 40 through col 6 line 50 “C-SYNC signal…synchronized with TTRc…TTR synchronization from the C-SYNC signal” and fig. 5).

As regarding claim 19, Palm discloses for maintaining synchronization of a customer premises (see col 5 line 40 through col 6 line 15 “remote DSL modem with the central office DSL modem" and fig 3) TCM Timing Reference (TTR clock) (see col 5 line 40 through col 6 line 50 “C-SYNC signal…synchronized with TTRc…TTR synchronization from the C-SYNC signal” and fig. 5), operating in a Time Compression Multiplexing (TCM-ISDN) noise environment (see col 1 lines 45-64 “interferences results…number of twisted pair wires is shared by xDSL modems and TCM-ISDN” and col 3 line 1-10 and col 5 line 10-25 “TCM-ISDN…disturb”), including a TTR indication portion allowing the customer premises DSL transceiver (see col 5 line 40 through col 6 line 15 “remote DSL modem with the central office DSL modem" and fig 3) to synchronize a TTR clock (see col 5 line 40 through col 6 line 50 “C-SYNC signal…synchronized with TTRc…TTR synchronization from the C-SYNC signal” and fig. 5); transmitting a TTR indication signal to the customer premises DSL transceiver (see col 5 line 40 through col 6 line 15 “remote DSL modem with the central office DSL modem" and fig 3) to maintain synchronization of the transceiver's TTR clock (see col 5 line 40 through col 6 line 50 “C-SYNC signal…synchronized with TTRc…TTR synchronization from the C-SYNC signal” and fig. 5).

For claim 28, Palm discloses, during a period of initiation (see col 5 line 20-40 “initiates the handshaking processs”) in which the customer premises DSL transceiver (see col 5 line 40 through col 6 line 15 “remote DSL modem with the central office DSL modem" and fig 3) transmits messages that are dominated by far-end crosstalk interference (see col 5 line 40 through col 6 line 60 “C-SYNC signal…synchronized with TTRc..signal is transmitted during the shaded times slots…TTR synchronization from the C-SYNC signal" and fig. 5; fig 8 and 9; FEXT); transmitting a TTR indication signal (see col 5 line 40 through col 6 line 60 "C-SYNC signal…synchronized with TTRc..signal is transmitted during the shaded times slots…TTR synchronization from the C-SYNC signal" and fig. 5; fig 8 and 9; FEXT) that is dominated by far-end crosstalk interference (see fig 8 and 9 FEXT) to the customer premises DSL transceiver (see col 5 line 40 through col 6 line 15 "remote DSL modem with the central office DSL modem" and fig 3) to maintain synchronization of the transceiver's TTR clock (see col 5 line 40 through col 6 line 50 "C-SYNC signal…synchronized with TTRc…TTR synchronization from the C-SYNC signal" and fig. 5).

For claim 30, Palm discloses during a period of initiation (see col 5 line 20-40 "initiates the handshaking processs") in which the customer premises DSL transceiver (see col 5 line 40 through col 6 line 15 "remote DSL modem with the central office DSL modem" and fig 3) transmits messages that are dominated by far-end crosstalk interference (see col 5 line 40 through col 6 line 60 "C-SYNC signal…synchronized with TTRc..signal is transmitted during the shaded times slots…TTR synchronization from the C-SYNC signal" and fig. 5; fig 8 and 9; FEXT), transmitting a TTR indication signal (see col 5 line 40 through col 6 line 60 "C-SYNC signal…synchronized with TTRc..signal is transmitted during the shaded times slots…TTR synchronization from the C-SYNC signal" and fig. 5; fig 8 and 9; FEXT) that is dominated by far-end crosstalk interference (see fig 8 and 9 FEXT) to the customer premises DSL transceiver (see col 5 line 40 through col 6 line 15 "remote DSL modem with the central office DSL modem" and fig

3) to maintain synchronization of the transceiver's TTR clock (see col 5 line 40 through col 6 line 50 “C-SYNC signal…synchronized with TTRc…TTR synchronization from the C-SYNC signal” and fig. 5).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of D1 by using the features, as taught by Palm, in order to provide a method of synchronizing the modem and central office DSL modem during an initiation phase in order to provide initiation over a greater length (see Palm col 2-3.

2. Claims 2-4, 7-9, 20-22, 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over ITU-T Recommendation G.992.3 and Palm (US 7,296,086) as applied to claim 1 above, further in view of Okamura (US 6,658,024 B1).

For claims 2-4, 7-9, 20-22, 25-27, D1 and Hasegawa disclose all the claimed invention in paragraph 2.

For claim 2 and 20, D1 discloses teaches a first set of symbols for indicating the hyperframe boundary (see page 57 “ each superframe….symbol…to establish superframe boundaries” and fig 8-6); and a second set of symbols (see page 57 “ each superframe….data symbols” and fig 8-6 data frame).

For claim 4 and 22, D1 discloses wherein the synchronization symbol (see page 57 “ each superframe….synchronization symbol…to establish superframe boundaries” and fig 8-6) is comprises-transmitted during each of the first set of symbols (see page 57 “ each superframe….symbol…to establish superframe boundaries” and fig 8-6);.

For claim 2 and 20, Palm teaches a first set of symbols for indicating the hyperframe boundary (see fig 8 and 9; symbols bordering the hyperframe and col 5 line 60-67 "TTR hyperframe"); and a second set of symbols (see fig 8 and 9; symbols and col 5 line 60-67 "TTR hyperframe").

For claim 3 and 21, Palm teaches wherein the first set of symbols includes the first continuous group of symbols of the hyperframe dominated by far-end crosstalk interference (see fig 9 FEXTc, NEXTc).

For claim 4 and 22, Hasegawa teaches wherein the TTR indication signal (see col 5 line 40 through col 6 line 50 "C-SYNC signal…synchronized with TTRc…TTR synchronization from the C-SYNC signal" and fig. 5) is comprises-transmitted during a set of symbols (see fig 8 and 9; symbols bordering the hyperframe and col 5 line 60-67 "TTR hyperframe…signal is transmitted during the shaded time slots (DMT symbols)…").

D1 and Palm are silent about:

For claim 2 and 20, where the rest of the symbols have no signal for allowing quiet noise measurement.

For claim 7 and 25, measuring at least one quiet noise parameter during the second set of symbols .

For claim 8 and 26, wherein the measured quiet noise parameter is quiet noise level per bin.

For claim 9 and 27, wherein the measuring at least one quiet noise parameter is performed for symbols in the presence of far-end crosstalk or near-end crosstalk.

Okamura from the same or similar field discloses a communication system with the above features:

For claim 2 and 20, Okamura teaches where the rest of the symbols have no signal for allowing quiet noise measurement (see column 3 lines 1-17, noise measurement is performed on the symbols that are randomly generated by the ATU-C generator).

For claim 7 and 25, Okamura teaches, measuring at least one quiet noise parameter during the second set of symbols (see column 3 lines 1-17, noise measurement is performed on the symbols that are randomly generated by the ATU-C generator, note these symbols can occupy the entire frame (see abstract lines 9-10, carriers are defined as frames carrying symbols), thus they are the same as the first set of symbols that sets the frame) boundaries).

For claim 8 and 26, Okamura teaches wherein the measured quiet noise parameter is quiet noise level per bin (see column 2 lines 27-36, the carriers are divided in to certain frequency widths, each carrier noise level is measured, which means noise level is measured per frequency width).

For claim 9 and 27, Okamura teaches, wherein the measuring at least one quiet noise parameter is performed for symbols (see column 3 lines 1-17, noise measurement is performed on the symbols that are randomly generated by the ATU-C generator) in the presence of far-end crosstalk or near-end crosstalk (see column 2 lines 19-27, measurement is performed during near and far-end interference).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of ITU-T Recommendation G.992.3 and Palm by using the features, as taught by Okamura, in order to minimize the delay of fast data (see col 6 of Okamura);

3. Claims 10-13, 16-18, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Palm (US 7,296,086) in view of Okamura (US 6,658,024 B1) and ITU-T Recommendation G.992.3, hereinafter D1.

As regarding claim 10, Palm discloses A method for maintaining TCM Timing Reference (TTR) synchronization (see col 5 line 40 through col 6 line 50 “C-SYNC signal…synchronized with TTRc…TTR synchronization from the C-SYNC signal” and fig. 5) in a customer premises DSL transceiver (see col 5 line 40 through col 6 line 15 “remote DSL modem with the central office DSL modem" and fig 3) during in a Time Compression Multiplexing (TCM-ISDN) noise environment (see col 1 lines 45-64 “interferences results…number of twisted pair wires is shared by xDSL modems and TCM-ISDN” and col 3 line 1-10 and col 5 line 10-25 “TCM-ISDN…disturb”),, the method comprising: receiving a TTR indication signal from a central office DSL transceiver, the TTR indication signal (see col 5 line 40 through col 6 line 50 “C-SYNC signal…synchronized with TTRc…TTR synchronization from the C-SYNC signal” and fig. 5) comprising at least one hyperframe that includes a plurality of symbols (see fig 8 and 9; symbols bordering the hyperframe and col 5 line 60-67 “TTR hyperframe…signal is transmitted during the shaded time slots (DMT symbols)…”); using at least a portion of the TTR indication signal to synchronize a local TTR clock thereto (see col 5 line 40 through col 6 line 50 “C-SYNC signal…synchronized with TTRc…TTR synchronization from the C-SYNC signal” and fig. 5);

For claim 11, Palm teaches a first set of symbols for indicating the hyperframe boundary (see fig 8 and 9; symbols bordering the hyperframe and col 5 line 60-67 “TTR hyperframe”); and a second set of symbols (see fig 8 and 9; symbols and col 5 line 60-67 “TTR hyperframe”).

For claim 12, Palm teaches wherein the first set of symbols includes the first continuous group of symbols of the hyperframe dominated (see fig 8 and 9; col 5 line 50 through col 6 line 20 “TTR hyperframe”) by far-end crosstalk interference (see fig 9 FEXTc, NEXTc).

For claim 13, Palm teaches wherein the TTR indication signal is comprises-transmitted during each of the first set of symbols (see fig 8 and 9; symbols bordering the hyperframe and col 5 line 60-67 “TTR hyperframe…signal is transmitted during the shaded time slots (DMT symbols)…”).

For claim 29, Palm discloses receiving a second TTR indication signal (see col 5 line 40 through col 6 line 60 “C-SYNC signal…synchronized with TTRc..signal is transmitted during the shaded times slots…continue transmitting ..until it has acquired TTR synchronization from the C-SYNC signal” and fig. 5; fig 8 and 9; FEXT) from a central office DSL transceiver (see col 5 line 40 through col 6 line 15 “remote DSL modem with the central office DSL modem" and fig 3), the second TTR indication signal (see col 5 line 40 through col 6 line 60 “C-SYNC signal…synchronized with TTRc..signal is transmitted during the shaded times slots…continue transmitting ..until it has acquired

TTR synchronization from the C-SYNC signal" and fig. 5; fig 8 and 9; FEXT) comprising at least one hyperframe that includes a plurality of symbols (see fig 8 and 9; symbols and col 5 line 50 through col 6 line 60 "TTR hyperframe…DMT symbols"), some of which contain no signal (see col 6 line 1-50 "silence is transmitted in the unshaded time slots") from the central office DSL transceiver (see col 5 line 40 through col 6 line 15 "remote DSL modem with the central office DSL modem" and fig 3); using at least a portion of the second TTR indication signal to synchronize a local TTR clock thereto signal (see col 5 line 40 through col 6 line 60 "C-SYNC signal…synchronized with TTRc..signal is transmitted during the shaded times slots…continue transmitting ..until it has acquired TTR synchronization from the C-SYNC signal" and fig. 5; fig 8 and 9; FEXT); and sending messages to the central office DSL transceiver (see col 5 line 40 through col 6 line 15 "remote DSL modem with the central office DSL modem" and fig 3) during symbols of the hyperframe (see col 5 line 40 through col 6 line 50 "shaded time slots…silence is transmitted in the unshaded time slots…R-SYNC signal is transmitting….all shaded time slots…" and fig 8 and 9) which no signal is received from the central office DSL transceiver (see col 5 line 40 through col 6 line 50 "remote DSL modem with the central office DSL modem ….shaded time slots…silence is transmitted in the unshaded time slots…R-SYNC signal is transmitting….all shaded time slots…" and fig 8 and 9).

Palm is silent about:

For claim 10, that the some of the symbols do not contain any signals from the central office and that during those symbols noise is measured; a COMB signal.

For claim 11, where the rest of the symbols have no signal for allowing quiet noise measurement.

For claim 16, measuring at least one quiet noise parameter during the second set of symbols .

For claim 17, wherein the measured quiet noise parameter is quiet noise level per bin.

For claim 18, wherein the measuring at least one quiet noise parameter is performed for symbols in the presence of far-end crosstalk or near-end crosstalk.

Okamura from the same or similar field discloses a communication system with the above features:

For claim 10, Okamura teaches some of which contain no signal from the central office DSL transceiver (see column 3 lines 1-5; while frames (which Okamura defines as carriers) are being transmitted from the central office (ATU-C), the symbols are generated randomly for measurement purposes) ; and measuring a quiet noise parameter during symbols of the hyperframe (see abstract lines 9-10, carriers are defined as frames carrying symbols) in which no signal is received from the central office DSL transceiver (see column 3 lines 1-17, noise measurement is performed on the symbols that are randomly generated by the ATU-C generator).

For claim 11, Okamura teaches where the rest of the symbols have no signal for allowing quiet noise measurement (see column 3 lines 1-17, noise measurement is performed on the symbols that are randomly generated by the ATU-C generator).

For claim 16, Okamura teaches, measuring at least one quiet noise parameter during the second set of symbols (see column 3 lines 1-17, noise measurement is performed on the symbols that are randomly generated by the ATU-C generator, note these symbols can occupy the entire frame (see abstract lines 9-10, carriers are defined as frames carrying symbols), thus they are the same as the first set of symbols that sets the frame) boundaries).

For claim 17, Okamura teaches wherein the measured quiet noise parameter is quiet noise level per bin (see column 2 lines 27-36, the carriers are divided in to certain frequency widths, each carrier noise level is measured, which means noise level is measured per frequency width).

For claim 18, Okamura teaches, wherein the measuring at least one quiet noise parameter is performed for symbols (see column 3 lines 1-17, noise measurement is performed on the symbols that are randomly generated by the ATU-C generator) in the presence of far-end crosstalk or near-end crosstalk (see column 2 lines 19-27, measurement is performed during near and far-end interference).

ITU-T Recommendation G.992.3 from the same or similar field of endeavor discloses the following:

For claim 10 , ITU-T Recommendation G.992.3 discloses a channel discovery phase (see page 98-100 8.13 and fig 8-23 "Channel Discovery" and page 110, 8.13.3 "Channel discovery phase") of a DSL service initialization (see page 98-100, 8.13 "Initialization Procedure….ADSL transceiver initialization ") and a COMB signal (see page 111, 8.13.3.1.2 "transmit….C-COMB symbols" and page 145 , 8.15.2 "Channel discovery phase….loop diagnostic mode…figure 8-35" 158 "C-COMB1….C-COMB2" and page 137 "C-COMB1….C-COMB2").

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Palm by using the features, as taught by Okamura and ITU-T Recommendation G.992.3, in order to minimize the delay of fast data (see col 6 of Okamura); in order to ATU-R and ATU-C to establish a communication link which will enable a user to communicate and to maximize throughput and reliability (see ITU-T Recommendation G.992.3 page 98 , 8.13)

4. Claim 5 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over ITU-T Recommendation G.992.3, Palm (US 7,296,086) and Okamura (US 6,658,024 B1) as applied to claim 4/21 above, further in view of Ginesi et al (US 7,050,825 B2)..

For claim 5 and 23, Palm, Okamura and D1 teach all the claim invention as described in paragraph 3. Additionally, Palm and Okamura teach that the TTR indication signal (see col 5 line 40 through col 6 line 50 "C-SYNC signal…synchronized with TTRc…TTR synchronization from the C-SYNC signal" and fig. 5). However, they do not teach that a REVERB signal are sent. Ginesi et al from the same or similar field of endeavor teaches wherein a signal comprises a REVERB signal (see column 4 lines 57-61, REVERB signals are sent) transmitted during the first set of symbols (see column 5 lines 27-29; the REVERB signal is just one of other signals sent).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Palm, D1, and Okamura by using the features, as taught by Ginesi, in order to provide the transmission of a REVERB signal, noise measurements can be performed (see column 4 lines 52-61 of Ginesi et al). Thus the channel can be optimized for later data transmission.

5. Claim 6 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over ITU-T Recommendation G.992.3, Palm (US 7,296,086), Okamura (US 6,658,024 B1), and Ginesi et al (US 7,050,825 B2) as applied to claim 5/23 above, further in view of Okita (2004/0025101 A1).

For claim 6 and 24, D1, Palm ,Okamura, and Ginesi et al teach all the claimed invention as described above. Palm ,Okamura, and Ginesi teach the REVERB signal of claim 5, however they do not teach that it is sent in frequency ranges that are not attenuated. Okita from the same or similar field of the endeavor teaches that signal includes a range of sub-carriers (see section 0008, signals are sent in different frequency ranges, thus the signals have range of frequency sub-carriers) selected in a frequency range low enough to avoid being attenuated (see section 0008 lines 9-14) when transmitted to the customer premises DSL transceiver (see section 0002 lines 11-13, the invention can be applied to ADSL technology, thus it can apply to DSL modems also).

Thus it would have been obvious to a person of ordinary skill at the time of the invention was made to include signals at low frequency ranges, in order to avoid attenuation. One could have easily implemented the sending of signals on a low frequency via an RF mixer, which is well known in the art. The Office transmitter, which is a DSL modem, has usually those mixers or it could be very easily implemented.

The motivation for sending signal at a low frequency where they are not attenuated is that the signal is not attenuated, meaning it does not lose strength and the full strength signal is received.

6. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over disclosures of Palm (US 7,296,086), Okamura (US 6,658,024 B1) and ITU-T Recommendation G.992.3 as applied to claim 12 above, and further in view of Ginesi et al (US 7,050,825 B2).

For claim 14, Palm and Okamura teach all the claim invention as described in paragraph 4. Additionally, Palm and Okamura teach that the TTR indication signal signal (see col 5 line 40 through col 6 line 50 "C-SYNC signal…synchronized with TTRc…TTR synchronization from the C-SYNC signal" and fig. 5). However, they do not teach that a REVERB signal are sent. Ginesi et al from the same or similar field of endeavor teaches wherein a signal comprises a REVERB signal (see column 4 lines 57-61, REVERB signals are sent) transmitted during the first set of symbols (see column 5 lines 27-29; the REVERB signal is just one of other signals sent).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Palm, D1, and Okamura by using the features, as taught by Ginesi, in order to provide the transmission of a REVERB signal, noise measurements can be performed (see column 4 lines 52-61 of Ginesi et al). Thus the channel can be optimized for later data transmission.

7. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over disclosures of Palm (US 7,296,086), Okamura (US 6,658,024 B1), ITU-T Recommendation G.992.3 and Ginesi et al (US 7,050,825 B2) as applied to claim 14 above, and further in view of disclosure of Okita (2004/0025101 A1).

For claim 15, Palm ,Okamura, and Ginesi et al teach all the claimed invention as described in paragraph 7. Palm ,Okamura, and Ginesi teach the REVERB signal of claim 15, however they do not teach that it is sent in frequency ranges that are not attenuated. Okita from the same or similar field of the endeavor teaches that signal includes a range of sub-carriers (see section 0008, signals are sent in different frequency ranges, thus the signals have range of frequency sub-carriers) selected in a frequency range low enough to avoid being attenuated (see section 0008 lines 9-14) when transmitted to the customer premises DSL transceiver (see section 0002 lines 11-13, the invention can be applied to ADSL technology, thus it can apply to DSL modems also).

Thus it would have been obvious to a person of ordinary skill at the time of the invention was made to include signals at low frequency ranges, in order to avoid attenuation. One could have easily implemented the sending of signals on a low frequency via an RF mixer, which is well known in the art. The Office transmitter, which is a DSL modem, has usually those mixers or it could be very easily implemented.

The motivation for sending signal at a low frequency where they are not attenuated is that the signal is not attenuated, meaning it does not lose strength and the full strength signal is received.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US-3,835,260 A	09-1974	Prescher et al.
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US-6,724,849 B1	04-2004	Long et al.
US-2004/0105454 A1	06-2004	Okamura, Yusaku
US-7,058,152 B2	06-2006	Long et al.
US-7,142,501 B1	11-2006	Barrass et al.

The above references are cited to show methods of synchronization/interference ISDN and DSL.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenan Cehic whose telephone number is (571) 270-3120. The examiner can normally be reached on Monday through Friday 8:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on (571) 272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kenan Cehic/
Examiner, Art Unit 2416

/Kwang B. Yao/

Supervisory Patent Examiner, Art Unit 2416